



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

*On the Proportion of Marriages at different Ages of the Sexes. By SAMUEL BROWN, F.S.S., one of the Vice-Presidents of the Institute of Actuaries.*

[Read before Section F. (Economic Science and Statistics) of the British Association for the Advancement of Science, at Dublin, August 1857.]

IN a paper which was read before the Institute of Actuaries on the 31st May, 1852, "On the Uniform Action of the Human Will, as exhibited by its Mean Results in Social Statistics," I drew attention to the remarkable regularity with which marriages are contracted in any country, and the very small limits of difference from the average number which appear from year to year. The observations made by M. Quetelet in Belgium, from 1825 to 1845, showed that the extreme difference in the total number of marriages was little more than half the difference of the extremes in the number of deaths in the same period. Such a conclusion seemed to imply that the subject was worthy of more research. If the law of mortality can be so accurately defined at different ages, that pecuniary interests, amounting to some hundreds of millions sterling, can be valued and adjusted with the greatest nicety, it is reasonable to conclude that the labour of a statistical inquiry into the proportion of marriages at different ages would be rewarded with the discovery of some equally defined law, since the variations from year to year in a given number of facts appear, from a large number of observations, to be even less than in the former case. It is true that, as human life must fail at some time, from the natural decay of the powers of life, every interval of age after man has once attained maturity may be expected, under ordinary circumstances, to show a steady and progressive increase in the liability to disease and death. On the other hand, it may be argued that marriage is the exercise of the free will of man—that consequently, it does not depend on the age or period of life, but on the arbitrary exertion of those feelings or mental and moral qualities which are not subject to natural laws, or at least not to such laws as we are able to express numerically in the same manner we can the law of mortality in any given population. If we consider, however, marriage as, in one sense, the natural provision for the preservation or increase of the species, and the counteraction to the law of mortality by which the species would perish, we should not be surprised to find that, however imperceptibly to individuals, there is a tendency to obey some unknown law of nature which at the period of maturity would lead to the maximum of marriages, and gradually diminish with age in

the same manner as the tendency to disease and death increases with age. The motives and caprices of individuals would only have the same effect on the general results which the different habits of individuals may have in increasing or diminishing the rate of mortality. Accordingly, M. Quetelet, in a comparison of the number of marriages in Belgium for each five years of age after 21, for both sexes, for a period of five years consecutively, showed that the average results in each period scarcely differed at all from year to year. The table is so remarkable, that I have reduced the proportion to 100 of the total marriages in each year, and present it to show the small differences which will then be seen to prevail.

*Proportion per Cent. of Males and Females married at different Classes of Ages, in the Towns of Belgium.*

AGES.	MALES.					FEMALES.				
	1841.	1842.	1843.	1844.	1845.	1841.	1842.	1843.	1844.	1845.
21 and under	3·91	4·12	5·01	4·05	4·14	11·64	11·57	12·47	12·25	11·78
21 to 40 . . . .	83·02	82·20	82·36	83·50	83·17	77·33	76·85	77·12	76·79	77·95
40 to 60 . . . .	11·64	12·07	11·31	11·38	11·66	10·68	11·35	10·10	10·61	9·88
60 & upwards	1·43	1·61	1·32	1·07	1·03	·35	·23	·31	·35	·39
	100·	100·	100·	100·	100·	100·	100·	100·	100·	100·

Thus, between the ages 21-40, the mean number of males married at these ages was 82·85 per cent. in the five years; the greatest proportion being 83·50 per cent., and the least 82·20. The mean proportion of females married at the same ages was 77·21 per cent.; the greatest proportion being 77·95, and the least 76·79 per cent.

Again, from ages 40 to 60: the mean number of males married in the five years between these ages was 11·61 per cent.; the greatest being 12·07, and the least 11·31 per cent. At the same ages, the proportion of females married, on the mean of five years, was 10·52 per cent. of all who married; the greatest proportion being 11·35, and the least 9·88 per cent. Even at this wide range of ages, the extremes scarcely differ more than 7 per cent. above or below the average in the whole five years.

Carrying this inquiry still further, M. Quetelet gives some observations which, when reduced to percentages of the total number of marriages, show that almost the same proportions were maintained from year to year when the number of men of different ages marrying women of different ages is compared for each of the five years. This table I have also reduced to the proportion per

cent. of all the marriages in each year ; and it will be observed, on inspection, fully to bear out the previous assertion.

*Table showing the Proportion of Marriages of Men of different Ages with Women of different Ages, in Belgium, for Five Years—1841 to 1845 inclusive.*

Ages.		1841.	1842.	1843.	1844.	1845.	Mean.
Men aged 30 and under, with women aged . . .	( 30 and under	42·81	42·80	43·84	44·40	45·00	43·77
	30-45 . . . . .	8·80	9·05	8·53	8·10	8·35	8·57
	45-60 . . . . .	·31	·42	·44	·43	·35	·39
	60 & upwds.	·02	·02	·03	·02	·02	·02
							52·75
Men aged 30 to 45, with women aged . . . . .	( 30 and under	20·50	19·98	19·90	20·30	19·88	20·11
	30-45 . . . . .	18·51	18·59	18·07	17·75	17·05	17·99
	45-60 . . . . .	1·77	1·87	1·70	1·68	1·82	1·77
	60 & upwds.	·06	·04	·06	·07	·07	·06
							39·93
Men aged 45 to 60, with women aged . . . . .	( 30 and under	1·26	1·19	1·35	1·21	1·18	1·24
	30-45 . . . . .	3·00	3·03	3·17	3·24	3·40	3·17
	45-60 . . . . .	1·54	1·54	1·53	1·58	1·58	1·55
	60 & upwds.	·08	·07	·10	·12	·10	·09
							6·05
Men aged 60 and upwards, with women aged . . . . .	( 30 and under	·16	·12	·15	·14	·16	·15
	30-45 . . . . .	·46	·51	·47	·41	·43	·46
	45-60 . . . . .	·51	·59	·49	·38	·50	·49
	60 & upwds.	·21	·18	·17	·17	·11	·17
							1·27
Total number of Marriages . . . . .		100·	100·	100·	100·	100·	100·
		29,876	29,023	28,220	29,326	29,210	

Here we may observe, that the tendency for men under 30 to marry women under the same age has increased during nearly the whole period, whilst the proportion of those of the same age marrying women older than themselves has somewhat diminished ; but in other respects the proportions are remarkably regular. The proportion of men under 30 years of age marrying women under 30 years of age varied from 42·81 to 45 per cent. ; of men from 30 to 45 years of age marrying with women 30 years of age and under varied from 19·88 to 20·50 per cent. ; and of men from 45 to 60 years of age marrying women from 30 to 45 years varied from 3 to 3·40 per cent. ; and even of men 60 years of age and upwards, marrying women from 45 to 60 years of age, varied only from 38 to 51 per cent.

Since these observations were made by M. Quetelet in Belgium, similar facts have been collected in other countries, and in a more elaborate essay some very interesting comparison might be made on this novel subject. But the facts have not all been classified in the same form nor under the same combinations of ages, nor could they be reduced to exact uniformity without much time and labour at command. It will be sufficient, on the present occasion, to

examine the very minute returns which have been given by the Registrar-General of Births, Deaths, and Marriages for England, in the valuable and elaborate reports which have from time to time appeared from his office. I cannot avoid taking this opportunity of drawing attention to the many novel and striking researches on entirely new subjects which we find in the letters and reports of Dr. Farr to the Registrar-General, on various questions of population and finance connected therewith. It may safely be said, that there is no collection of papers in Europe which contains statistics on the subject of population so full of matter progressive in interest and importance.

The first Report in which we find the ages of the married couples given, is in the 9th Annual Report, in which the ages of 24,356 men married to 24,356 women of different ages, registered in the year 1846, are recorded in quinquennial periods of age, and subdivided into four classes—bachelors who married spinsters, bachelors who married widows, widowers who married spinsters, and widowers who married widows. In subsequent Reports similar returns will be found for the years 1847 and 1848; they are deficient for the years 1849 and 1850, but resumed again for 1851, 1852, and 1853, and subsequently. In order to afford for examination a large mass of facts, and yet to preserve the means of comparison, I have combined together the returns for the three years 1846, 1847, and 1848, and compared them with those for 1851, 1852, and 1853.

The total number of marriages (in which the ages of both parties were given), so combined, were—

	1846-7-8.	1851-2-3.	Proportion per Cent.	
			1846-7-8.	1851-2-3.
Table B—Bachelors with spinsters .	68,452	191,412	83.515	82.578
Table C—Bachelors with widows .	3,061	9,762	3.735	4.211
Table D—Widowers with spinsters .	6,886	19,712	8.401	8.504
Table E—Widowers with widows .	3,565	10,911	4.349	4.707
Table A.	Total. . . .	81,964 231,797	100.	100.

It will be observed that a slight diminution took place in the proportion of bachelors married to spinsters in the last triennial period, when compared with the former, and a small increase in the proportion of bachelors married to widows and of widowers married to widows. The marriages of widowers with spinsters remained almost the same in the two periods.

In the tables subjoined to this paper, the proportions for 100,000 marriages in each period are given for each quinquennial period of age, and subdivided into the four classes described above;

but in order to allow of a comparison with the table deduced from M. Quetelet's observations, the following short tables have been computed, bringing the results of the two triennial periods under view in the same classification of ages as was adopted for Belgium. I have added also a comparison of the proportions deduced from 55,901 marriages in the State of Massachusetts, of which the ages of both parties were given.

## SUMMARY.

*Proportion per Cent. of Marriages.*

	ENGLAND.				BELGIUM.		MASSACHUSETTS.	
	Men.		Women.		Mean of 5 Years, 1841-45.		6½ Years to 1 Jan., 1857.	
	1846-7-8.	1851-2-3.	1846-7-8.	1851-2-3.	Men.	Women.	Men.	Women.
Ages under 30 ..	76·770	75·624	83·049	82·201	52·75	65·27	75·010	87·078
30-45 ....	18·310	19·219	14·178	14·890	39·93	30·19	19·536	10·558
45-60 ....	4·031	4·248	2·490	2·642	6·05	4·20	4·119	2·020
60 and upwards	·889	·909	·283	·267	1·27	·34	1·335	·344
	100·	100·	100·	100·	100·	100·	100·	100·

*Table showing the Proportion of Marriages of Men of different Ages with Women of different Ages in every 100 Marriages in England, in the three Years 1847-8-9, compared with the three Years 1851-2-3; and a similar Return for Marriages in Massachusetts for 6½ years, to January 1, 1851.*

		1847-8-9.	1851-2-3.	MASSACHUSETTS. 6½ Years to 1 Jan., 1851.
Men aged under 30, with women aged ..	Under 30 .....	73·211	71·991	73·262
	30-45 .....	3·525	3·592	1·714
	45-60 .....	·034	·040	·028
	60 and upwards ..	..	·001	·006
Men aged 30 to 45, with women aged ..	Under 30 .....	9·458	9·791	13·186
	30-45 .....	8·365	8·881	6·112
	45-60 .....	·481	·542	·225
	60 and upwards ..	·006	·005	·013
Men aged 45 to 60, with women aged ..	Under 30 .....	·352	·381	·600
	30-45 .....	2·090	2·212	2·439
	45-60 .....	1·523	1·588	1·048
	60 and upwards ..	·066	·067	·032
Men aged 60 and up- wards, with women aged .....	Under 30 .....	·028	·038	·030
	30-45 .....	·198	·205	·293
	45-60 .....	·452	·472	·719
	60 and upwards ..	·211	·194	·293
Total Marriages ..		100·	100·	100·
		81,964	231,797	55,901

From the short summary in the first of these two tables, it will be observed that in the second triennial period there has been a slight diminution in the proportion of marriages, both of men and women, at ages under 30, and an increase in the proportion to almost the same extent between the ages 30 and 45. From the second table it appears that the diminution, though very small, is mostly perceptible amongst the marriages of men under 30 with women of the same ages, and the corresponding increase is principally in the marriages of men from 30 to 45 with women under 45 years of age. In all other respects the very remarkable regularity which prevails in each of the triennial periods strongly confirms the conclusions which were deduced from the observations in Belgium, that in a given number of marriages the proportion of men marrying at different ages with women at different ages may be predicted with as much certainty as the proportion of men or women dying at different ages. It is necessary, however, to draw attention to the fact, that though these proportions may remain the same so long as the habits or sentiments of the population are unchanged, they may of course vary if any great revolution, either mental or physical, is altering the state of society. But the preceding tables, and the reasonings to which they lead, will, if continued periodically, indicate with minuteness whether such changes are merely temporary, or whether they depend on some radical alteration in the condition, sentiments, or manners of the people.

A comparison of similar tables for different countries will also lead to reflection on the causes of the differences which will be perceived, and to inquiries to what extent early or late marriages act upon the social position or general prosperity of a nation. The proportion of marriages at the same ages of men and women differs very widely in the two tables which are above given for Belgium and England. Thus, in England, 76·77 per cent. of marriages in 1846-7-8 were of men under 30 years of age; in Belgium, the proportion of marriages of men appears to be only 52·75 per cent. In England, 18·310 per cent. were marriages of men between 30 and 45 years of age; in Belgium, 39·93 per cent. In 100 marriages in the above periods, 83·049 per cent. in England were of women under 30 years of age—in Belgium, only 65·27 per cent; and 14·178 per cent. of marriages in England were of women from 30 to 45 years of age, whilst in Belgium they appear by these tables to be 30·19 per cent. Unless there is reason, therefore, to suspect some great discrepancy, unaccounted for, in

the collection of the facts, it would follow from these tables that a greater proportion of marriages takes place at advanced ages in Belgium than in England.

To the English Table I have appended the proportion of marriages at corresponding ages, deduced from 55,901 marriages in Massachussets, as given in the returns printed for that State in the Registration Report for the year ending 31st December, 1851. It includes a summary of the marriages in which the ages of both parties were specified, from 1st May, 1844, to 1st January, 1851. At the younger ages, the results show a great similarity to those for England, and the proportion in 100 marriages of men marrying at different ages is almost identical with those for England for 1851-2-3; but the proportion of women married is greater at ages under 30, in Massachussets, being 87·078 compared with 82·201 per cent. Men under 30 marrying with women under 30, show almost the same proportion, by the returns for England and Massachussets; and there is no great discrepancy at any other ages, except that the marriages of men from 30 to 45 with women under 30 appear to be in excess, when compared with the English returns.

Now that attention has been drawn to this important subject, the collection of facts for different countries will no doubt become more valuable from year to year. The practical use of these returns will depend in a great measure on the accuracy with which, at each periodical census, the population is enumerated at the different ages, and subdivided into single, married and widowed persons of both sexes. The census of 1851, for England, contains all that can be desired for future investigation, so soon as the results for a few more years of observation, in the form in which the tables which are appended to this paper are given, shall have been published; and we have every reason to conclude that the natural law of marriage is capable of being defined, and its probabilities calculated, with as much accuracy as we now trace the rate of mortality which prevails amongst the people of this country.



MASSACHUSETTS.

TABLE A.—In 100,000 Men of different Ages married to Women of different Ages, registered from 1st May, 1844, to 1st January, 1851 (Total Number of Marriages, 55,901).

AGES OF MEN AND WOMEN AT THE TIME OF MARRIAGE.																
		AGES OF WOMEN.														
Total { Women ... Men ...		Under 20.	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75-	80-	85.
		100,000 100,000	46,166	16,663	5,600	3,007	1,951	1,001	656	361	197	101	26	15	7	
Ages of Men	Under 20....	1,823	472	55	11	4	2	4								
	20-.....	41,026	22,518	2,671	349	62	20	2	2							
	25-.....	32,161	7,077	7,773	948	263	55	13	5							
	30-.....	11,107	4,240	3,617	1,605	443	123	23	4							
	35-.....	5,309	1,299	1,551	1,207	673	209	39	9							
	40-.....	3,120	422	608	800	608	444	118	23							
	45-.....	1,987	27	132	258	419	463	390	71							
	50-.....	1,313	11	38	88	172	275	318	147	27						
	55-.....	819	4	19	23	48	134	220	163	38						
	60-.....	648	...	5	13	20	61	107	129	61						
	65-.....	338	2	...	7	14	45	45	77	93						
	70-.....	234	...	4	9	7	14	37	32	39						
	75-.....	104	2	2	5	...	2	4	5	18						
	80-.....	11	...	...	...	...	...	2	2	21						
	85.....		...	...	...	...	...	...	...	2						



TABLE B.—In 100,000 Marriages in England, Proportion of Bachelors of different Ages with Spinsters of different Ages, registered in the Years 1846, 1847, and 1848 (Total Number of Marriages, 68,452), compared with those registered in the Years 1851, 1852, and 1853 (Total Number of Marriages, 191,412).

AGES OF BACHELORS AND SPINSTERS AT THE TIME OF MARRIAGE.												
AGES OF SPINSTERS WHO MARRIED BACHELORS.												
Ages of Spinsters who married Bachelors.	In the Years 1846-7-8.		In the Years 1851-2-3.		Under 20.		20-		25-		30-	
	In 1846-7-8.		In 1851-2-3.		In 1846-7-8.		In 1846-7-8.		In 1846-7-8.		In 1846-7-8.	
	In 1851-2-3.		In 1846-7-8.		In 1851-2-3.		In 1851-2-3.		In 1851-2-3.		In 1851-2-3.	
Total (Spinsters)	83,515	82,578	11,054	11,684	47,122	48,367	884	884	5,312	5,312	10,538	10,538
Total (Bachelors)	83,515	82,578	11,054	11,684	47,122	48,367	884	884	5,312	5,312	10,538	10,538
Under 20	2,361	2,447	1,303	1,487	962	962	884	884	5,312	5,312	10,538	10,538
20-	46,145	45,308	7,887	8,355	31,250	31,250	12,153	12,153	8,421	8,421	15,091	15,091
25-	24,235	23,681	1,614	1,571	12,403	12,403	2,287	2,287	2,749	2,749	1,655	1,655
30-	7,200	7,380	195	220	2,208	2,208	359	359	723	723	634	634
35-	2,231	2,330	34	35	90	90	108	108	176	176	232	232
40-	854	916	17	13	22	22	14	14	42	42	55	55
45-	303	312	1	2	2	2	2	2	11	11	17	17
50-	112	138	1	1	1	1	1	1	6	6	4	4
55-	39	45	1	1	1	1	1	1	4	4	2	2
60-	28	17	1	1	1	1	1	1	1	1	1	1
65-	4	3	1	1	1	1	1	1	1	1	1	1
70-	2	1	1	1	1	1	1	1	1	1	1	1
75-	1	1	1	1	1	1	1	1	1	1	1	1
80-	1	1	1	1	1	1	1	1	1	1	1	1
85-	1	1	1	1	1	1	1	1	1	1	1	1
90-	1	1	1	1	1	1	1	1	1	1	1	1



TABLE D.—*Proportion of Widowers (in 100,000 Men) of different Ages, married to Spinsters (in 100,000 Women) of different Ages, registered in the Years 1846, 1847, and 1848, compared with those registered in the Years 1851, 1852, and 1853.*

		AGES OF WIDOWERS AND SPINSTERS AT THE TIME OF MARRIAGE.												AGES OF SPINSTERS WHO MARRIED WIDOWERS.																					
Total { Spinsters Widowers		In the Years 1846-7-8.		In the Years 1851-2-3.		Under 20.		20-		25-		30-		35-		40-		45-		50-		55-		60-		65-		70-		75-		80-		85.	
		In 1846-7-8.	In 1851-2-3.	In 1846-7-8.	In 1851-2-3.	In 1846-7-8.	In 1851-2-3.	In 1846-7-8.	In 1851-2-3.	In 1846-7-8.	In 1851-2-3.	In 1846-7-8.	In 1851-2-3.	In 1846-7-8.	In 1851-2-3.	In 1846-7-8.	In 1851-2-3.	In 1846-7-8.	In 1851-2-3.	In 1846-7-8.	In 1851-2-3.	In 1846-7-8.	In 1851-2-3.	In 1846-7-8.	In 1851-2-3.	In 1846-7-8.	In 1851-2-3.	In 1846-7-8.	In 1851-2-3.	In 1846-7-8.	In 1851-2-3.	In 1846-7-8.	In 1851-2-3.		
		8,401	8,504	255	214	1,982	2,083	2,181	2,127	1,618	1,685	1,079	1,119	703	704	364	350	148	151	52	48	12	17	4	5	2	1	1	1	1	1	1	1	1	
Under 20...	2	370	332	48	43	255	234	54	49	11	5	1	1	1	3	6	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
20-	1,481	1,453	107	84	738	722	497	480	112	136	26	28	120	120	6	18	2	3	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5		
25-	1,916	1,928	52	50	569	623	714	658	415	448	118	118	305	305	81	47	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1		
30-	1,561	1,623	22	21	240	281	495	482	413	432	298	305	83	81	46	47	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1		
35-	1,214	1,243	12	8	115	131	237	261	345	344	275	270	177	177	46	47	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1		
40-	794	785	6	3	39	47	105	107	164	163	204	199	156	163	102	83	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17		
45-	544	562	4	2	17	23	52	58	95	95	83	107	143	132	94	92	42	48	42	48	42	48	2	3	2	3	2	3	2	3	2	3	2		
50-	244	269	2	1	9	8	16	15	27	30	39	49	56	66	58	53	39	31	18	10	8	5	1	5	1	5	1	5	1	5	1	5	1		
55-	183	181	1	1	2	2	5	5	12	11	8	6	11	9	12	11	14	13	16	9	7	5	2	2	3	2	3	2	3	2	3	2	3		
60-	68	78	1	1	2	2	3	3	8	4	3	1	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
65-	17	34	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
70-	5	12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
75-	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
80-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
85-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
90-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		

